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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,468	03/28/2001	Werner Juengling	MI22-1599	5654

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EXAMINER

LEBENTRITT, MICHAEL

ART UNIT PAPER NUMBER

2824

DATE MAILED: 11/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/820,468

Applicant(s)

JUENGLING ET AL.

Examiner

Michael S. Lebentritt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 97-107 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 97 and 101-106 is/are rejected.
- 7) ☒ Claim(s) 98-100 and 107 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 8/13/01 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information disclosure statement.

Claim Objections

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 113-123 have been renumbered as 97-107.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claim 97, 103, and 104 (113, 119, and 120) are rejected under 35 U.S.C. 102(a) as being anticipated by Singer, Peter (Editor In Chief); "The New Low-K Candidate: It's A GAS"; Technology News, March 1989

Singer discloses providing a pair of conductive lines (wire), the conductive lines each having an upper surface; forming a mass (carbon film) over the substrate, the

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mass disposed over and between the pair of conductive liens; planarizing the mass to a leave about equal to the upper surfaces of the pair of conductive lines; depositing a layer of insulative material (bridge); and vaporizing (oxidizing) at least a portion of the mass disposed between the conductive liens to form the low dielectric constant insulative structure therebetween, the structure comprising at least one void. Wherein said insulative layer is about 500 angstroms thick and is deposited prior to vaporizing said mass. Please see figure and discussion on page one

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 101,102,104,105,106 (117,118,120,121,122) are rejected under 35 U.S.C. 103(a) as being unpatentable over Singer as applied to claims 97,103, and 104 (113,119, and120) above, and further in view of Boeglin, 5,061,514.

Singer is applied supra but lacks the anticipation of wherein forming a mass of material comprises forming the mass by plasma decomposition of a hydrocarbon or halogen substituted hydrocarbon. Wherein forming the mass by plasma decomposition comprises forming a porous carbon mass. Beogelin discloses forming a mass of material comprising decomposition of a hydrocarbon or halogen substituted hydrocarbon and forming a porous carbon mass. See column 2, line 45 to column 3, line 55. In view of this disclosure it would of been obvious to one of ordinary skill in the

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art at the time of invention to from a mass of material by decomposition of a hydrocarbon or halogen substituted hydrocarbon as taught by Boeglin, in view of the primary reface of Singer, because the decomposition of the hydrocarbon provides fro a non corrosive environment to produce carbon films.

In regards to claim 105 (121), Examiner takes official notice that it well known in the art to sputter deposit silicon dioxide.

In regards to claims 106 (122): the same device if formed by reversing the steps either forming said insulator before or after vaporizing said mass, Ex parte Rubin , 128 USPQ 440 (Bd. App. 1959) (Prior art reference disclosing a process of making a laminated sheet wherein a base sheet is first coated with a metallic film and thereafter impregnated with a thermosetting material was held to render prima facie obvious claims directed to a process of making a laminated sheet by reversing the order of the prior art process steps.). See also In re Burhans, 154 F.2d 690, 69 USPQ 330 (CCPA 1946) (selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results); In re Gibson, 39 F.2d 975, 5 USPQ 230 (CCPA 1930)

Allowable Subject Matter

Claims 98, 99,100 and 107 (114, 115, 116 and 127) are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in

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independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Prior art references fail to teach wherein: forming a mass comprises providing a material comprising a mixture of a first material substantially vaporizable in an oxidizing environment and a second material substantially not vaporizable in an oxidizing atmosphere. Further: wherein providing a material comprising a mixture comprises providing a mixture of a carbon comprising material and a silicon oxide material. Also: wherein forming a mass of material comprises forming the mass of a material comprising about 20% to about 80% SIC_x, wherein "x" is a number from about 0.2 to about 1.5.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael S. Lebentritt whose telephone number is 703-305-2691. The examiner can normally be reached on 5/4/9.

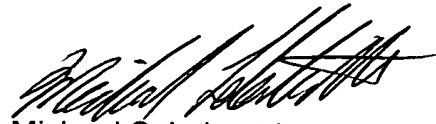
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on 703-308-2816. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-3431.

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Michael S. Lebentritt
Primary Examiner
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